

PROSKURIN, V.V., dotsent; KUZNETSOV, L.A., inzh.; ANDRIANOV, A.P.,  
inzh.; GUSEV, I.P., inzh.

Industrial testing of shield ceilings made of logs. Izv.vys.  
ucheb.zav.; gor.zhur. no.6:3-8 '59. (MIRA 13:4)

1. Tomskiy ordena Trudovogo Krasnogo Znameni politekhnicheskii  
institut imeni S.M.Kirova. Rekomendovana kafedroy razrabotki  
plastovykh mestorozhdeniy.  
(Mine timbering)

ANDRIANOV, A.P., starshiy prepodavatel'; GUSEV, I.P., dotsent; KUZNETSOV,  
L.A., starshiy prepodavatel'; PROSKURIN, V.V., dotsent; FEDOROV,  
N.A., starshiy prepodavatel'

Clay breakthroughs in mining. Izv.vys.ucheb.zav.; gor.zhur.  
no.3:15-18 '61. (MIRA 15:4)

1. Tomskiy ordena Trudovogo Krasnogo Znameni politekhnicheskiiy  
institut imeni S.M.Kirova; rekomendovana kafedroy razrabotki  
plastovykh mestorozhdeniy Tomskogo politekhnicheskogo instituta.  
(Prokop'yevsk region—Coal mines and mining) (Clay)

GUSEV, I.P., kand. tekhn. nauk (Novokuznetsk); ZATLER, I.A., gornyy inzh.;  
RUBINSKIY, Yu.M., dotsent

Establishing norms of cyclicity in longwall mines. Ugol' 38 no.11:  
24-28 N '63. (MIRA 17:9)

1. Trest Kirovugol' (for Zatler). 2. Dnepropetrovskiy gornyy  
institut (for Rubinskiy).

POLKANOV, M.I.; GUSNV, I.S., aspirant.

Ultraviolet irradiation of cows on the "Krekshino" State Farm.  
Zhivotnovodstvo 20 no.1:48 Ja '58. (MIRA 11:1)

1. Starshiy veterinarnyy vrach sovkhoza "Krekshino" Moskovskoy oblasti (for Polkanov). 2. Vsesoyuznyy institut zhivotnovodstva (for Gusev).

(Ultraviolet rays--Physiological effect) (Cows)

ALEKSEYEVA, Mariya Vasil'yevna; RYAZANOV, V.A., prof., red.;  
GUSEV, I.S., red.; PETROVA, N.K., tekhn. red.

[Determination of atmospheric pollutions] Opređenje at-  
mosfernykh zagriaznenii. Pod red. V.A. Riazanova. Izd.2.,  
perer. i dop. Moskva, Medgiz, 1963. 255 p. (MIRA 16:5)

1. Chlen-korrespondent Akademii meditsinskikh nauk SSSR (for  
Ryazanov).

(AIR—POLLUTION)

KASHIN, A.S.; GUSEV, I.S., starshiy nauchnyy sotrudnik

Production of pregnant mare's serum. Veterinariia 39 no.11:  
57-58 N '62. (MIRA 16:10)

1. Nachal'nik veterinarnogo otdela Ministerstva proizvodstva i  
zagotovok sel'skokhozyaystvennykh produktov Udmurtskoy ASSR.

GUSEV, I. T.

"Study of the Rigidity of a Cantilever Horizontal Milling Machine."  
Sub 27 Feb 51, Moscow Mechanics Inst

Dissertations presented for science and engineering degrees in  
Moscow during 1951.

SO: Sum. No. 480, 9 May 55

GUSEV, I.T.; VEDENSKIY, V.A.

Rigidity norms for circular grinding machines. Standartizatsiia  
26 no.9:6-8 S '62. (MIRA 15:9)  
(Grinding machines--Standards)



GUSEV, I.T.; VEDENSKIY, V.A.

Rigidity standards for surface-grinding machines. Standartizatsiia  
27 no.3:24-30 Mr '63. (MIRA 16:4)  
(Grinding machines--Standards)

GUSEV, I.V.

Highway construction should be unremittingly controlled by  
party organizations. Avt.dor. 22 no.12:2-4 D '59.  
(MIRA 13:4)

1. Sekretar' Ryazanskogo oblastnogo komiteta Kommunisticheskoy  
partii Sovetskogo Soyuza.  
(Road construction)

GUSEV, I. V.

Heat and mass transfer in a granular bed. III. Determination of mass-transfer coefficients in a moving granular bed. I. V. Gusev, N. I. Nikitina, and M. E. Aecov. *Zhur. Tekh. Fiz.* 20, 2006-7 (1950); cf. C.A. 50, 16202d. The method of vaporizing naphthalene from the surface of granules into a stream of moving gas (C.A. 50, 16202d) was utilized. The exptl. column was 1620 mm. high and 110 mm. in diam. Layers of 4 x 7-mm. ceramic cylinders and naphthalene cylinders of the same size comprised the moving granular bed. It was found that the mass- and heat-transfer coeffs. in the range of  $Re$  from 5 to 160 were the same for both the moving and stationary beds. The results indicated that at  $Re = 142$  and for velocities of the granular bed ranging from 0 to 60 cm./min., the mass-transfer coeffs. were const.,  $Nu/Sc^{1/2} = 7.7$ . Paul Dallyenko

05-12-5/9

AUTHORS: Luk'yanov, P.I., Gusev, I.V. and Nikitina, N.I.

TITLE: On the Movement of a Compact Layer of a Granular Material  
in an Apparatus (O dvizhenii kompaktnogo sloya zernistogo  
materiala v apparate)

PERIODICAL: Khimiya i Tekhnologiya Topliva i Masel, 1957, No.12,  
pp. 38-44 (USSR).

ABSTRACT: An experimental investigation of some special features  
of the movement of layers of granular materials in cylindrical  
and rectangular vessels was carried out. A dividing metallic  
tube, 230 mm in dia., 2 500 mm long, and a rectangular vessel,  
232 mm wide, 1 500 mm long, a spherical and pelletised alumino-  
silicate catalyst, refractory heat transfer medium and activated  
carbon were used for the experiments.

Experimental results are given in the form of velocity distri-  
bution curves. On the basis of the data obtained on the  
distribution of velocities in a cross-section of a moving  
column and the dependence of this distribution on mean particle  
size the problem of changes in the mean density of a compact  
layer of granular material is discussed.

There are 3 tables, 4 figures and 7 references, 4 of which  
are Slavic.

Card1/1

AVAILABLE: Library of Congress

GUSEV, I.V.

GUSEV, I.V., inzh.; LYSENKO, V.D., inzh.

Excavating machine operators at the building site of the Kuybyshev  
Hydroelectric Power Station. Mekh.stroi. 14 no.8:8-11 Ag '57.

(MIRA 10:11)

(Kuybyshev Hydroelectric Power Station) (Excavating machinery)

LUK'YANOV, P.I.; GUSEV, I.V.; NIKITINA, N.I.

Pressure of compact moving beds of granular material on the  
walls of shaft-type apparatus. Khim. i tekhn. topl. i masel 4  
no.1:63-68 Ja '59. (MIRA 12:1)  
(Pressure)

LUK'YANOV, P.I.; GUSEV, I.V.; NIKITINA, N.I.

Limit rate of flow of granular materials. Khim.i tekhn.topl.i masel  
5 no.10:45-49 O '60. (MIRA 13:10)

(Granular materials)

LUK'YANOV, P.I.; GUSEV, I.V.; NIKITINA, N.I.

Effective utilization of the operating volume of apparatus with the  
compact moving bed of granular material. Khim. i tekhn. topl. i masel  
6 no.11:51-55 N '61. (MIRA 14:12)  
(Catalysts)



GUSEV, I.Ye.; LILOVA, O.M.; MURIN, A.N.; PREOBRAZHENSKIY, B.K.; YAKOVLEV,  
V.A.

On the gadolinium 146 isotope. Zhur. eksp. i teor. fiz. 32 no.6:  
1585 Je '57. (MLRA 10:8)

1. Radiyevyy institut Akademii nauk SSSR.  
(Gadolinium--Isotopes)

GUSEV, K.

Electric locomotive performs faultlessly. Mast. ugl. 3 no. 3:15 Mr '54.  
(MLRA 7:4)

1. Mashinist elektrovoza shakhty "Krasnyy Profintern" kombinata  
Stalinugol'.  
(Mine railroads)

BERSHADSKIY, A.I., doktor tekhnicheskikh nauk; GUSEV, K.F., inzhener.

Increasing the productivity of circular rip saws. Der.prom.5 no.9:  
6-8 S '56. (MLRA 9:10)

1.Belorusskiy lesotekhnicheskii institut imeni S.M.Kirova.  
(Saws)

VOLAROVICH, M.P.; GALDIN, N.Ye.; GUSEV, K.F....

Geological, mineralogical, and X-ray study of quartz tectonites.  
Zap.Vses.min.ob-va 90 no.6:660-672 '61. (MIRA 15:2)

1. Institut fiziki Zemli AN SSSR, Moskva.  
(Quartz) (Tectonite)

SHIBARSHIN, A.; GUSEV, K.

Fello workers' courts exchange their work experience. Sov.  
profsoiuzy 18 no.7:38 Ap '62. (MIRA 15:3)

1. Predsedatel' tovarishcheskogo suda avtobusnogo zavoda, g.  
Pavlovo na Oke, Gor'kovskoy oblasti (for Shibarshin).
2. Predsedatel' tovarishcheskogo suda rechnogo porta, g.  
Khabarovsk (for Gusev).

(Labor courts)

**Experimental production of fiberboard for use in high-tension oil transformers.** H. N. Moiseev. *Russkoye Prom.* 14, No. 3, 42-57 (1935).—The usual procedure of manuf. is described. The fiberboard was obtained from uncooked saw calico waste trimmings and from the same material cooked with 0.5% NaOH (on the wt. of air-dry trimmings) at 1 atm. pressure for 3 hrs., followed by washing at 70° for 1 hr. In each case the material was washed (the cooked mass until free from NaOH) and beaten to 45-55° freeness. The cooked product resulted in a fiberboard comparable in every respect to the foreign products. **Water sorption of electroinsulating fiberboard.** K. F. Gury. *Ibid.* 68-64.—The fiberboard obtained from the uncooked calico waste shows a sharply defined capillary and microcapillary porous structure. With the increasing degree of beating the microcapillarity decreases, but at 65° freeness it is greater than that of the fiberboard obtained from the cooked trimmings of the same freeness. Cooking with NaOH reduces somewhat the microcapillary hygroscopicity of the resulting fiberboard, but at the same time it facilitates the formation of hydrated cellulose in the process of beating. Its microcapillary porosity is practically destroyed by heating, the process of H<sub>2</sub>O absorption being effected almost exclusively by the swelling of the amorphous mass formed in the process of beating. The

hygroscopicity of the fiberboard obtained from the uncooked trimmings at 45° freeness is greater than that of the board obtained from the cooked stuff of the same degree of freeness; the same is true of the products beaten to 65° freeness, where, besides the swelling of the amorphous mass, a condensation of moisture in the micropores, not yet destroyed by the beating, takes place. The expts. show that there is no relation between the moisture sorption, i. e., the hygroscopicity of a fiberboard and its ability to absorb H<sub>2</sub>O on contact with it. Thus, with the greater beating the power of absorption of a fiberboard sharply decreases, while its hygroscopicity increases. Chas. Blanc

**X-ray study of aliphatic acids.** K. E. Gusev, (Colloid J. (U. S. S. R.) 3, 611-19(1967)). - A modified x-ray chamber of the Zeeman-Bohlin type was used to obtain the x-ray patterns of stearic and elaidic acids. The interference lines of the 2 compds., superimposed in the ordinary Debye chamber, are 2 mm. apart in the new chamber. Structural details of the chamber are given. Luhn Tisch

LIST AND PROC. 050101																									
PROCESSING AND PROPERTIES													LIST AND PROC. 050101												
<p>A universal x-ray apparatus for structure analysis.  K. P. Gusev. <i>Colloid J.</i> (U. S. S. R.) 4, 377 (1962).  A handy app. is described which can be used for photo-  grams of immobile and rotating crystal, of powders,  foils and fibers. The examples given include a Laue pat-  tern of calcite, a powder diagram of Al, and a texture dia-  gram of rolled Al.  J. J. Bikerman</p>																									
<p>ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION</p>																									
<p>REGIONAL CLASSIFICATION</p>													<p>REGIONAL CLASSIFICATION</p>												



GUSEV, K F.

USSR/Chemical Technology - Chemical Products and Their Application. Treatment of  
Solid Mineral Fuels, 1-12

Abst Journal: Referat Zhur - Khimiya, No 19, 1956, 62515

Author: Volarovich, M. P., Gusev, K. F.

Institution: None

Title: Roentgenographic Investigation of Peat

Original

Periodical: Tr. Mosk. torfyanogo in-ta, 1953, No II, 97-111

Abstract: Results of roentgenographic investigations of upper sphagnum-  
erophorum peat ranging from absolutely dry to 66% content of water  
carried out by means of a specially designed apparatus. Peat con-  
taining from 66 to 16% water has a crystalline structure the water  
therein is weakly bound by swelling water and adsorption water.  
With a water content from 16 to 12% (hydration) a clearly defined  
crystalline structure of peat is revealed and a cellulose-type  
lattice is observed. On further drying peat loses the hydration  
water and is converted to amorphous state.

Card 1/1

GULAY, L. F., GINZBURG, E. M., and ADAMOVICH, M. I.

"Viscosity, Structure and Adhesive Properties of Glue Solutions"  
(viskozost', struktura i kleyaschiye svoystva kleyevykh rastvorov) from  
the book Trudy of the Third All-Union Conference on Colloid Chemistry,  
pp. 155-170 Iz. AN SSSR, Moscow, 1956

(Report given at above Conference, Minsk, 21-4 Dec 53)

Authors: Chair of Physics of Moscow Pest Institute and Laboratory of the  
Shoe Factory "Paris Commune"

GUSEV, K. F.

X-ray studies of the structure of peat lignites and wood.  
K. F. Gusev and K. F. Gusev. *Colloid J. (U.S.S.R.)*  
19, 1957-58 (1958) (English translation). See C.A.B. 51,  
B. M. R. 1/2

GUSEV, K. F.

X-ray studies of the structure of peat bituminous and vaxen.  
M. P. Volarovich and K. F. Gusev (Peat Inst., Moscow).  
Kolloid. Zhur. 18, 643-645 (1956). The substances extractable  
from peat by mixts. of  $\text{H}_2\text{O}$ - $\text{C}_2\text{H}_5$  give x-ray pattern simi-  
lar to those of paraffin wax. The parameter  $a$  of the ele-  
mentary cell is 7.85-8.33 Å., and the packing coeff. of the  
mol. chains is 0.698-0.931. The variability of  $a$  is attributed  
to the presence of cyclic hydrocarbons having long side  
chains. J. J. Bikerman

Glenn Phipps

GUSEV K F

Changes in the structure, the degree of dispersity, and the shear yield stress of peats caused by their freezing. M. P. Volgarich, K. F. Gusev, S. N. Markov, and V. F. Tropin (Peat Inst., Moscow). *Kolloid. Zhur.* 19, 101-11 (1957); cf. C.A. 51, 6980a. Fresh peat mined from a depth >1 m. showed a diffraction max. at 4.15-4.25 Å. (in x-ray diffraction patterns; this max. was due to wax and bitumen. In peat frozen and thawed in the lab. or in peat mined from a depth subject to winter freezing this max. was absent, probably because ice broke up the wax crystals. Freezing increased the mean radius of peat particles and lowered the specific surface area from, e.g., 4500 to 2200 sq. cm./g. The yield stress  $\sigma$  was lowered by, e.g., 40% by freezing and thawing, but about 1/2 of this decrease was recovered during aging at room temp. for 2 yrs.; at 80% moisture,  $\sigma$  was, e.g., 85 before, and 60 g./sq. cm. after, freezing. J. J. Bikerman.

4

VOLAROVICH, M.P.; BONDARENKO, A.T.; GUSEV, K.F.

X-ray investigations of rock samples at high pressures and  
temperatures. Trudy Inst. fiz. Zem. no.23:55-59 '62.  
(MIRA 16:11)

VOLAROVICH, M.P.; GALDIN, N.Ye.; GUSEV, K.F.

X-ray study of quartz deformations in tectonites. Trudy Inst.  
fiz. Zem. no.23:60-79 '62. (MIRA 16:11)

GUSEV, K.I.

Some methodological problems and late results of treating tuberculous meningitis in adults [with summary in French]. Zhur.nevr. i psikh. 57 no.10:1291-1295 '57. (MIRA 10:12)

1. Kafedra nervnykh bolezney (zav. - prof. V.A.Yershov) Stalingradskogo meditsinskogo instituta i Stalingradskoy oblastnoy klinicheskoy bol'nitsy (glavnyy vrach K.I.Gusev)  
(TUBERCULOSIS, MENINGEAL, therapy, methods & results (Rus))



CHERNENKO, M.B.; LUKIN, Yu.B.; GUSEV, K.M.; KUDREVATYKH, L.A.; MAKARENKO, Ya.I.; SATYUKOV, P.A., red.; STEPANOV, V.P., red.; SELYUK, S.I., red.; SUTOTSKIY, S.B., red.; ABALKIN, N.A., red.; KOZEV, N.A., red.; AVERCHENKO, B.Ye., red.; SOBOLEV, L.S., red.; SIMONOV, K.M., red.; POLEVOY, B.N., red.; GALIN, B.A., red.

[Heroes of our times] Geroi nashikh dnei. Moskva, Izd. gazety  
"Pravda," 1961. 619 p. (MIRA 14:11)  
(Labor and laboring classes)

GUSEV, K.P., inzhener.

Problem of the most efficient cross section for double T  
beams. Strel.prom. 33 no.10:27-29 0 '55. (MIRA 9:1)  
(Girders)

AUTHOR: Gusev, K.P., Ingenieur. 176

TITLE: Problems of crack-formation in reinforced concrete constructions. (K voprosu o treshchinoustoichivesti zhelezobetonnykh elementov).

PERIODICAL: "Beton i Zhelezobeton" (Concrete and Reinforced Concrete), 1957, No.3, pp.105-106 (U.S.S.R.)

ABSTRACT: G. D. Tsiskreli's book "Resistance of Tensioned Non-Reinforced and Reinforced Concretes" published by Gosstroizdat, 1954 discusses new approaches to the problems of crack-formation. Some formulae quoted in the book are criticised such as the formula for the calculation of tensional stresses in concrete. When defining the internal stresses in a section of a beam which is in the state of crack formation it is necessary to state the height of the compressed zone of the concrete as well as the compression stresses in the fibres. For this Professor Tsiskreli used two conditions: the sum of the internal stresses on the horizontal axis = 0; the sum of the internal moments = 0. The second condition applies only to external loading and cannot be used as a base for the calculations. He also assumes that  $X$  = height of the compressed zone of the concrete. This is not a constant and cannot be used in the calculations. The author is correcting the formula for the height of the compressed zone and defines

Problems of crack-formation in reinforced concrete constructions. (Cont.) 176

the latter more exactly by applying the linear law of the distribution of the deformation throughout the section. He also gives a modified formula for the fibre deformation. Gusev claims that his formulae give accurate results whereas Tsiskreli's formulae were only accurate within 10 to 15%. There are two graphs, one table and two references (to the above book).

GUSEV, K.P. (Sverdlovsk)

Most efficient form of I-shaped steel elements subjected to  
longitudinal bending. Stroimekh.i rasch.soor. 2 no.1:  
34-38 '60. (MIRA 13:6)

(Girders)

ASTAPOVICH, Z.A., dots., red.; GUSEV, K.V., dots., red.; KACHURINA,  
A.V., red.; MARTYNOVA, E.N., ~~tekhn.~~ red.

[The Soviet working class at the present-day stage] Sovet-  
skii rabochii klass na sovremennom etape. Moskva, Izd-vo  
"Mysl'," 1964. 187 p. (MIRA 17:3)

1. Moscow. Akademiya obshchestvennykh nauk.

ASTAPOVICH, Z.A., dotsent, red.; GUSEV, K.V., kand. istorich. nauk, red.;  
ZHDANOV, P.Ya., red.; MURASHEV, A.A., red.; RODZHABLI, D.S., red.;  
NAUMOV, K.M., tekhn. red.

[Consolidating the alliance between the working class and the  
peasantry during the sharp upsurge of agriculture, 1953-1958]  
Ukrepelenie soiuza rabochego klassa i krest'ianstva v period krutogo  
pod"ema sel'skogo khoziaistva; 1953-1958 gg. Moskva, Izd-vo VPSH i  
AON pri TsK KPSS, 1961. 478 p. (MIRA 14:7)

1. Moscow. Akademiya obshchestvennykh nauk.  
(Agricultural policy)

FRANTSEV, Yu.P., rektor, otv. red.; IVAN'KOVICH, N.F., red.; VLADIMIRTSEV, V.S., red.; STEPANYAN, TS.A., prof., red.; CHANGLI, I.I., starshiy nauchnyy sotr., kand. ekonom. nauk, red.; YESELEV, N.Kh., red.; GUSEV, K.V., red.; BONAREV, N., red.; GRINGAUZ, S., red.; SPITSYNA, A., red.; KUZNETSOVA, A., tekhn. red.

[Standard-bearers of communist labor] Znamenostsy kommunisticheskogo truda. Moskva, Moskovskii rabochii, 1961. 322 p.

(MIRA 14:12)

1. Akademiya obshchestvennykh nauk pri Tsentral'nom komitete Kommunisticheskoy partii Sovetskogo Soyuza i Chlen-korrespondent AN SSSR (for Frantsev). 2. Zaveduyushchiy sektorom Instituta filosofii AN SSSR (for Stepanyan). 3. Institut filosofii AN SSSR (for Changli).  
(Labor and laboring classes)



ASTAPOVICH, Z.A., dots., red.; GUSEV, K.V., kand. ist. nauk, red.;  
IVANOVA, R.S., red.; KACHURINA, A.V., red.; RATNER, V.I., red.;  
NAUMOV, K.M., tekhn. red.

[Development of the working class in the national Republics of  
the U.S.S.R.] Razvitie rabochego klassa v natsional'nykh respubli-  
kakh SSSR. Moskva, Izd-vo VPSH i AON pri TsK KPSS, 1962. 309 p.  
(MIRA 15:6)

1. Moscow. Akademiya obshchestvennykh nauk.  
(Labor and laboring classes)

KIM, M.P., glav. red.; ARUTYUNYAN, Yu.V., red.; GUSEV, K.V., red.;  
DANILOV, V.P., red.p SHARAPOV, G.V., red.; IVANOVA, R.S.,  
red.; KACHURINA, A.V., red.; RATHER, V.I., red.; NAUMOV,  
K.M., tekhn. red.

[Alliance between the working class and peasantry at the  
present-day stage] Soiuz rabocheho klassa i krest'ianstva  
na sovremennom etape. Moskva, Izd-vo VPSH i AON, 1962.  
358 p. (MIRA 15:9)

1. Moscow. Akademiya obshchestvennykh nauk.  
(Agricultural policy)

ASTAPOVICH, Z.A., dots., red.; GUSEV, K.V., dots., red.; ZHDANOV,  
P.Ya., red.; MARTYNOVA, M.N., tekhn. red.

[Growth of the creative activity of the working class of  
the U.S.S.R. in the period of the large-scale building of  
communism] Rost tvorcheskoi aktivnosti rabochego klassa  
SSSR v period razvernutoy stroitel'stva kommunizma. Mo-  
skva, Izd-vo VPSH i AON pri TsK KPSS, 1963. 437 p.

(MIRA 16:5)

1. Akademiya obshchestvennykh nauk, Moscow.  
(Labor and laboring classes)

RAICHIN, V. I.; GUSHEV, L.; NAKOV, T.

Movement of the center of gravity of a heat substance in nonlinear correlations. *Godishnik Min geol inst* 8;291-297 '61-'62[publ.'63].

AYZERMAN, Mark Aronovich; GUSEV, Leonid Alekseyevich; ROZONOV, Lev Il'ich; SMIRNOVA, Irina Mikhaylovna; TAL', Aleksey Alekseyevich; KOROLEV, N.A., red.; MURASHOVA, N.Ya. tekhn. red.

[Logic. Automats. Algorithms] Logika. Avtomaty. Algoritmy. Moskva, Fizmatgiz, 1963. 556 p. (MIRA 17:3)

GUSEV, L.

PA 7/49T55

USSR/Communications  
Telegraphy

Aug 48

"New Control Periods for Processing Telegrams,"  
L. Gusev, 1½ pp

"Vest Svyazi - Pochta" No 8 (101)

Stresses importance of accurate transmission and  
timely maintenance of apparatus. Refers to various  
sources of inefficiency.

7/49T55

GUSEV, L.

Telegraph

New production norms for telegraph operators, Sov. sviaz. No. 2, 1953.

9. Monthly List of Russian Accessions, Library of Congress, May 1953. Unclassified.

KRUGLOVA, Ye.I.; GUSEV, L.A., redaktor; VEYNTRAUB, A.B., tekhnicheskii redaktor.

[My work as a telegrapher; an account of a senior telegrapher in a district communication office] Moia rabota na telegrafe; rasskaz starshei telegrafistki raionnoi kontory aviasl. Moskva, Gos. izd-vo lit-ry po voprosam aviasl i radio, 1955. 22 p.  
(Telegraphers) (MLBA 9:5)



BRENINA, Varvara Vasil'yevna; MINAKOVA, Anna Grigor'yevna; YAS'KOVA,  
Nadezhda Tikhonovna; SVERDLOVA, I.S., redaktor; GUSEV, L.A.,  
redaktor; KHELEMSKAYA, L.M., tekhnicheskiy redaktor

[Our work practice with Baudot apparatus] Nash opyt raboty na  
apparate Bodo. Moskva, Gos.isd-vo lit-ry po voprosam svyazi i  
radio, 1955. 30 p. (MLRA 9:3)  
(Telegraph)

AREP'YEVA, Vera Mikhaylovna; ~~CHUBEN~~ L.A., otvetstvennyy redaktor;  
BERESLAVSKIYA, L.Sh., tekhnicheskiy redaktor

[Telegraph dispatcher in the city communication service] Ekspeditor  
telegrafa gorodskogo otdeleniia svyazi. Moskva, Gos. izd-vo lit-ry  
po voprosam svyazi i radio, 1956. 35 p. (MLRA 10:2)  
(Messengers) (Telegraph)

*GUSEV, L.A.*  
BUXGAN, I.A.; GUSEV, L.A., inzhener.

Improve the delivery of telegrams to addressees. Vest. aviasl 16  
(MIRA 10:1)  
no. 11:27-28 N'56.

1. Starshiy inzhener Upravleniya mezhdugorodnoy telegrafno-telefonnoy  
svyazi Ministerstva svyazi RSFSR. (for Buxgan) 2. Glavnoye upravleniye  
mezhdugorodnoy telegrafno-telefonnoy svyazi Ministerstva svyazi SSSR.  
(for Gusev).

(Telegraph)

AUTHOR: Gusev, L. A. (Moscow)

SOV/163-19-10-3/12

TITLE: Determination of Periodic Behavior in Automatic Control Systems Having Non-Linear Element With a Piecewise Linear Characteristic (Opredoleniye periodicheskikh rezhimov v sistemakh avtomaticheskogo regulirovaniya, soderzhashchikh nelineyny element s kusochno-lneynoy kharakteristikoy)

PERIODICAL: Avtomatika i telemekhanika, 1958, Vol 19, Nr 10, pp 931-944 (USSR)

ABSTRACT: This is a presentation generalizing the method of finding periodic solutions for systems of a general nature, that is to say for systems with an arbitrary piecewise linear characteristic (the number of sections with different gradients combining to form the curve being arbitrary). These periodic solutions take the form of Fourier-(Fur'ye) series (without neglecting the higher harmonics). Contrary to the procedure adopted in the paper cited by reference 1 no use is made of the affine transformation of the initial curve into a curve consisting of sections parallel with the coordinate axes. This leads to a considerable simplification of the equations which are used for the determination of the

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SOV/103-19-10-3/12

Determination of Periodic Behavior in Automatic Control Systems With a  
Non-Linear Element Having Piecewise Linear Characteristic

periods of motions of the plotting point in the individual sections of the curve. If a computer is employed it is convenient to use the algorithm advanced in this paper in case the number of linear sections of the curve is small and the order of the linear sections is high. Problems of stability of periodic operation schedules are not covered in this study. They are presented in reference 2. The problem posed in this paper consists of solving the system h of transcendent equations (equations for the periods) which determine the periods of motion in each section of the non-linear characteristic in the range of the period. Some remarks are made concerning calculation technique and some problems concerning the use of computers are studied. Finally it is demonstrated that it is possible to find periodic solutions for a more extended class of systems of differential equations with the help of the method advanced in this paper. There are 6 references, which are Soviet.

SUBMITTED:  
Card 2/3

January 9, 1958

9.3200

78165  
SOV/103-21-3-11/21

AUTHORS: Ayzerman, M. A., Gusev, L. A., Rosonoer, L. I.,  
Smirnova, I. M., Tal', A. A. (Moscow)

TITLE: Finite Automats. II.

PERIODICAL: Avtomatika i telemekhanika, 1960, Vol 21, Nr 3, pp 359-368 (USSR)

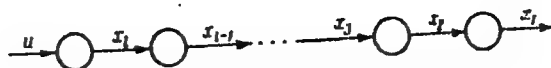
ABSTRACT: The paper is a continuation of the article published in "Avtomatika i telemekhanika," Vol 21, Nr 2. In Part II of this article the following problem is discussed: an automaton A', operating at a selected pace of time, T' is to be formed out of automats A, operating at a different pace of time T. In referring to Part I of the paper, it is shown that this may be obtained by two methods. According to the first method, *L* delay elements, operating at pace T, are connected in series as shown in Fig. 1,

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forming a delay line described by equations

$$x_1(p) = x_2(p-1),$$

$$x_2(p) = x_3(p-1),$$

$$\dots$$

$$x_l(p) = u(p-1).$$

The number  $\ell$  is a positive integer. It is assumed that pace  $T$  is represented on the time axis by equal intervals  $\tau$  and pace  $T'$  by equal intervals  $\ell\tau$ .

When an automaton is designed by the aggregation method in such a manner that the delay element with pace  $T$  is everywhere replaced by the above described lines, then the resulting automaton still operates at pace  $T$ . However, by registering the input and the delay line output symbols of this automaton after only  $\ell\tau$  sec,

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the automaton with the desired pace may be obtained. The second method is applied to an automaton A, which at the moment  $t_0$  assumes an input state  $\rho_0$ , the latter remaining constant until  $t_1$ . During time  $t_0 \leq t \leq t_1$  the automaton operates as an autonomic automaton (see part I). At  $t = t_1$  the input state  $\rho_0$  changes to  $\rho_1$  and remains constant until  $t = t_2$ , thus defining a new autonomic automaton. At  $t = t_2$  the state  $\rho_1$  changes to  $\rho_2$ , etc. Under the assumption that the input state  $\rho$  and the states  $K(t)$  (see part I) are registered only at times  $t_0, t_1, t_2, \dots, t_1, \dots$ , an automaton A' is obtained and is based on the equilibrium states of autonomic automats. The pace T' of A' is defined by  $t_0, t_2$ , etc., and does not depend on the pace of the automaton A. It is shown that the above two methods may be applied to neurons and to

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relay-contact systems. By neuron is meant an element with a finite number of inputs and one output only. The input and output states are designated by symbols from the "alphabet"  $\{0,1\}$ . The output symbol is singularly determined by the input symbols which existed  $\tau$  seconds ago. A neuron may be considered as a finite automaton with only two possible states. Neurons may be combined into networks without the use of symbol converters (see Part I). Relay systems may also be considered as finite automata of the "neuron network" type, the time delay of  $\tau$  sec being determined by the duration of the relay operation. Concluding remarks are made on the possibility of considering a system designed as to belong to the class of finite automata. The application of the theory of finite automata is terminated as soon as equations of type (6), Part I, are written. These equations are then used as a basis for engineering design. There are 5 figures; and 1 table.

SUBMITTED: November 26, 1959

Card 4/4

86115

S/103/60/021/012/002/007  
BC12/BO64

16.9500 (1024, 1031, 1132)

AUTHORS: Ayzerman, M. A., Gusev, L. A., Rozonoer, L. I.,  
Smirnova, I. M., Tal', A. A. (Moscow)

TITLE: Methods of Working out a Finite Automaton<sup>4</sup> the Time Pace of  
Which Is Dependent Upon the Variation of the Input State

PERIODICAL: Avtomatika i telemekhanika, 1960. Vol. 21, No. 12,  
pp. 1576-1594

TEXT: The papers of Refs. 1, 2 define such a dynamic system as a finite automaton the behavior of which is determined at the given instants (rhythms) 1, 2, ..., p by equation (1):  $\kappa(p) = F[\kappa(p-1), \varphi(p-1)]$ , where  $\kappa(p)$  and  $\varphi(p)$  are variables and  $F(\kappa, \varphi)$  an unambiguous function. The variable  $\lambda$  was assigned to the output of the automaton, and determined from formula (2):  $\lambda(p) = \Phi[\kappa(p)]$  a new variable  $\mu$  is introduced into equation (1) and formula (3) is obtained:  $\kappa(p) = \mu(p-1)$ ,  $\mu(p) = F[\kappa(p), \varphi(p)]$ . Instead of (2), the more general formula (5) is written down:  $\lambda(p) = \Psi[\kappa(p), \varphi(p)]$ . The system expressed by equations (3) and (5) is called a sequential machine. In so far as (2) is a special case of (5).

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Methods of Working out a Finite Automaton S/103/60/021/012/002/007  
the Time Pace of Which Is Dependent Upon the B012/B064  
Variation of the Input State

the "sequential machine" comprises the notion of the "finite automaton". On the other hand there is a theorem which shows that a sequential machine is "no more efficient" than a finite automaton with an output converter (Ref. 4). This theorem reads: Every sequential machine  $M$  can be compared to a finite automaton  $A$  with an output transformer in such a way that for any state of  $M$ , a corresponding state of  $A$  will exist, where in the case of an arbitrary input sequence the output sequence of  $A$  in all cases of  $p \geq 1$  represents the output sequence of  $M$  by a delay by one rhythm, and vice versa.- This paper deals with sequential machines only, which realize the finite automaton, formula (6). (6) is obtained from (3) and (5) by eliminating  $\mu$  and  $\kappa$ . It reads  $\lambda(p) = F_1[\lambda(p-1), \phi(p)]$ . The working cycles

1, 2, ...,  $p$  are clearly determined by the instants at which the input state is changed. It is assumed that the basic table of the (6) automaton is given. Three methods of realizing this basic table by means of the sequential machine are studied. The methods differ by the amount of information reaching the input of the automaton. The first method is that of D. D. Huffman (Ref. 5). The second method provides for the feed of an

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8621p

Methods of Working out a Finite Automaton S/103/60/021/012/002/007  
the Time Pace of Which Is Dependent Upon the B012/B064  
Variation of the Input State

additional information on the instants at which the input state has changed. In the third method, the automaton obtains the information through the input state at the respective moment and at some preceding moments. It is shown that this method warrants the most economic automaton. In this case it is possible not only to reduce essentially the number of necessary states of the automaton, but also to reduce as much as possible. There are 7 figures, 19 tables, and 7 references: 6 Soviet.

SUBMITTED: May 24, 1960

Card 3/3

7.3200

AUTHORS:

77828  
SOV/103-21-2-8/14  
Ayzerman, M. A., Gusev, L. A., Rozonoer, L. I.,  
Smirnova, I. M., Tal', A. A.

TITLE:

Finite Automata. I

PERIODICAL:

Avtomatika i telemekhanika, 1960, Vol 22, Nr 2, pp  
224-236 (USSR)

ABSTRACT:

The authors give their point of view on the theory of finite automata. A finite automaton is defined as a dynamical system which at certain discrete moments satisfies the following conditions: (1) The state of the system is selected from a finite number k of possible states (2) The state of the system input to the system is selected from a finite number r of possible input states. (3) The state of the system at any considered moment is defined singularly by the state of the system and the state of the input at the preceding moment. The following designations are introduced:  
(a)  $1, 2, \dots, k$  are symbols of k possible systems

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of states. Their totality  $\{X\}$  is called a state alphabet; (b)  $\rho_1, \rho_2, \dots, \rho_r$  are symbols of the  $r$  possible input states. Their totality  $\{\rho\}$  is called an input alphabet. According to the condition (3) the operation of a finite automaton is described by the expression

$$x(p) = F[x(p-1), p(p-1)], \quad (1)$$

where  $F$  is a function with a single value. The abstraction introduced by the concept of "finite automaton" singles out a class of systems in which the processes are described not by differential equations but by specific equations of type (1). A finite automaton may have  $L$  ( $L \leq k$ ) possible output states designated as  $\lambda_1, \lambda_2, \dots, \lambda_L$  or, in their totality designated as an output alphabet  $\{\lambda\}$ . In case of an automaton with an output,

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Eq. (1) must be supplemented by the "momentary" relationship given as

$$i(p) = \Phi[i'(p)]. \quad (2)$$

Equations (1) may be represented by Table 1.

Table 1

	$z_1$	$z_2$	$z_3$
$p_1$	$z_1$	$z_2$	$z_3$
$p_2$	$z_1$	$z_2$	$z_3$

This table is called the basic table of finite automaton and may be set up in the following manner: a pair of symbols selected from alphabets  $\{p\}$  and  $\{z\}$  determines one case in the table. Assuming the symbol pair as

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$\rho(p-1)$  and  $\lambda(p-1)$ , and using Eq. (1), the value of  $\lambda(p)$  may be determined and written for the above case. Equation (2) also defines a table

Table 2

$x$	$x_1$	$x_2$	$x_3$	$x_4$	$x_5$	$x_6$
$\lambda$	$\lambda_1$	$\lambda_2$	$\lambda_3$	$\lambda_4$	$\lambda_5$	$\lambda_6$

For a selected sequence of input symbols  $\rho$ , Table 3

Table 3

$\rho$	$\rho_1$	$\rho_2$	$\rho_3$	$\rho_4$	$\rho_5$	$\rho_6$
$x$	$x_1$	$x_2$	$x_3$	$x_4$	$x_5$	$x_6$

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characterizes a sequence of symbols  $\lambda$ , in accordance with Eq. (1). In this band there is a corresponding



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$\rho$  and  $\lambda$  for each moment  $t$ . The band is called a state band. Three symbols,  $\lambda(p-1)$ ,  $\rho(p-1)$ , and  $\lambda(p)$ , defined by Eq. (1) are separated by a heavy line on Table 3. They are called a triad. When the system is defined by Eq. (1) and Eq. (2), then an output band, as represented by Table 4, must also be considered.

TABLE 4

$t$	1	2	3	4	5	...
$\rho$	$\rho_1$	$\rho_2$	$\rho_3$	$\rho_4$	$\rho_5$	...
$\lambda$	$\lambda_1$	$\lambda_2$	$\lambda_3$	$\lambda_4$	$\lambda_5$	...

When the input state does not vary with time the automaton is called autonomic. Equation (1) for this case has the form

$$x(p) = F[x(p-1), z(0)]. \quad (3)$$

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where  $\rho(0)$  may be considered a parameter. The operation of an autonomic automaton may be represented graphically by  $k$  points corresponding to system states and represented by arrows which show the direction of transition from one point to the other, in accordance with Eq. (3). Since a nonautonomic automaton has  $r$  input states, it can be represented by  $r$  various autonomic automata, under the assumption that the  $r$  input states do not vary. The totality of  $r$  graphs representing the above autonomic automata characterizes the non-autonomic automaton. Figure 1 shows an example of a totality of 3 graphs

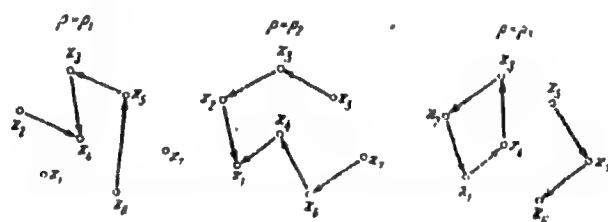


Fig. 1.

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Table 5 corresponds to the automaton characterized by Fig. 1.

TABLE 5

	$x_1$	$x_2$	$x_3$	$x_4$	$x_5$	$x_6$	$x_7$
$p_1$	$x_1$	$x_2$	$x_3$	$x_4$	$x_5$	$x_6$	$x_7$
$p_2$	$x_1$	$x_1$	$x_2$	$x_1$	$x_3$	$x_4$	$x_6$
$p_3$	$x_4$	$x_1$	$x_4$	$x_3$	$x_1$	$x_4$	$x_4$

The introduction of the concept of "finite automaton" poses a series of problems. The bands represented by Tables 3 and 4 are assumed to be infinite and cannot be selected. Selected are the algorithms which determine the symbol for any case of an infinite band. For the band represented by Table 3, the algorithms corresponding to the upper ( $\rho$ ) and to the lower ( $\chi$ ) line are designated as  $A_\rho$  and  $A_\chi$ , respectively.

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Similarly,  $A_\rho$  and  $A_\lambda$  are the algorithms of the output band, represented by Table 4. For a given automaton, the analysis, i.e., the determination of  $A_\lambda$  or  $A_\rho$  in accordance with  $A_\rho$ , does not represent any scientific problem. On the contrary, the synthesis of an automaton, i.e., finding the Eq. (1) from the given band algorithms poses several problems. When  $A_\lambda$  and  $A_\rho$  are known, the first problem consists in finding an algorithm proving that  $A_\rho$  and  $A_\lambda$  are not contradictory, i.e., there are no contradictory triads in the band. Two triads are contradictory when their symbols  $\rho(p-1)$  and  $\lambda(p-1)$  are the same, but when symbols  $\lambda(p)$  are different. When  $A_\rho$  and  $A_\lambda$  are not contradictory, an algorithm must be found determining all various triads of the band. Synthesis corresponding to the output band is a more complex problem. Here  $A_\rho$  and  $A_\lambda$  are known and the number of states  $k$  and function

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$\Phi$  in Eq. (2) have to be determined. It is stated that in case of finite state and output bands, the synthesis problem becomes less complex. To discuss the synthesis problem the following concepts are introduced: (1) The Symbol Converter. This is an abstract arrangement performing the transformation defined by Eq. (2), (2) The Equivalent Automata. On Fig. 2, automaton

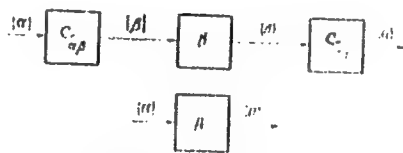


Fig. 2.

A is operating according to the input alphabet  $\{a\}$  and the state alphabet  $\{a\}$ . Automaton B has the input alphabet  $\{b\}$  and the state alphabet  $\{b\}$ . It is assumed that two symbol converters  $C_{a\beta}$  and  $C_{ba}$  may be selected

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In such a manner that for any sequence of input symbols from  $\{a\}$ , the sequence of symbols from the alphabet  $\{a\}$ , at the output of the combined system  $C_{ab}$ ,  $B$ ,  $C_{ba}$ , will be the same as the sequence of state symbols in  $A$ . In this case it is said that  $B$  is an image of  $A$  and may be written as.

$$A \rightarrow B \text{ or } B \rightarrow A.$$

When at the same time,

$$A \rightarrow B \text{ and } A \rightarrow B,$$

then  $A$  and  $B$  are equivalent automaton. (3) The Abstract Structure of a Finite Automaton. An arrangement of  $s$  input lines  $u_1, \dots, u_s$  and of  $n$ , generalized coordinates  $x_1, \dots, x_n$  is considered. At moments  $0, 1, 2, 3, \dots, p$ , each input and each coordinate has

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only one of a finite number of values. The operation of such an arrangement is described by

$$x_i(p) = f_i(x_1(p-1), \dots, x_n(p-1); u_1(p-1), \dots, u_r(p-1)) \quad (i=1, \dots, n) \quad (6)$$

Equation (6) is another form of Eq. (1). To one equation of type (1) correspond various equations of the type (6). The transition from Eq. (1) to the equivalent Eqs. (6) is called a selection of structure of a finite automaton, and Eq. (6) themselves are called an abstract structure (AS) of a finite automaton. (4) The Net. This is a totality of AS, interconnected by means of symbol converters. Based on the above concepts, the authors arrive at the conclusion that a finite automaton may be designed by combining into a net other finite automations. The design of a multitude of automations from a small number of initial automaton-"elements" is called abstract aggregation. A set of AS and converters is called complete, when by means of this set the networks designed are images of any selected

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automaton. A technically very important complete set is set-up of the following elements: (a) a binary delay element, described by the equation  $x(p) = z(p-1)$ , where  $x$  and  $z$  are selected from an alphabet comprising only two symbols, 0 and 1, for example; (b) a set of logic elements enabling performance of any logical function. It is shown that from the above set a net may be designed to be an image of any finite automaton. (To be continued). There are 4 figures; 6 tables; and 25 references 17 Soviet, 1 French, 7 U.S. The 5 most recent U.S. references are: Burks, A. W., Wright, J. B., Theory of Logical Nets, Proc. IRE, No. 4 (1953); Huffman, D. A., The Synthesis of Sequential Switching Circuits, Journ. Frankl Inst., Vol 257, Nr 3, 4 (1954); Burks, A. W., Wang, H., The Logic of Automata., Journ. Assoc. Comp. Mach., Vol 4, Nr 2, 3 (1957); Davis, M. D., Computability and Unsolvability, McGraw Hill, New York (1957); Copi, I. M., Elgot, C., Wright, J. B., Realisation of Events by Logical Nets, Journ. Assoc., Comp. Mach., 5, p 181, Nr 2 (1958).  
June 10, 1959

SUBMITTED:

Card 12/12



26772

S/103/61/022/006/007/014  
D229/D304

16.4000(1121,1132,1395)

AUTHORS: Ayzerman, M.A., Gusev, L.A., Rozonoer, L.I.,  
Smirnova, I.M., and Tal', A.A. (Moscow)

TITLE: Algorithmic non-solvability of the problem of  
recognizing the possibility of the representation  
of recursive events by finite automatic devices

PERIODICAL: Avtomatika i telemekhanika, v. 22, no. 6, 1961,  
748 - 755

TEXT: The authors introduce the concept of recursive events based  
on that of recursive functions, and consider the representation of  
events in automatic devices. The first theorem to be proved is  
that of non-solvability, as stated in the title. It has been for-  
mulated without proof in a paper by B.A. Trakhtenbrot (Ref. 7:  
Sintez logicheskikh setey, operatory kotorykh opisany sredstvami  
ischisleniya odnomestnykh predikativ, Dokl., AN SSSR, vol. 68, no.  
4, 1958) and the authors call it Trakhtenbrot's Theorem. To prove

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it, a more restricted problem is formulated: A recursive function  $\varphi(t)$  is supposed to be given which is fixed in the set of whole numbers and takes values belonging to a finite set  $\{0, 1, \dots, r-1\}$ . An automatic device A with input alphabet  $\{\rho_0, \dots, \rho_{r-1}\}$  is considered. Of all possible input sequences the following ones are selected:

$\rho_{\varphi(0)}, \rho_{\varphi(0)} \rho_{\varphi(1)}, \rho_{\varphi(0)} \rho_{\varphi(1)} \rho_{\varphi(2)}, \text{ etc.}$

$\rho_{\varphi(i)}$  being a symbol from  $\{\rho\}$  the index of which coincides with the value of  $\varphi(t)$  for  $t = i$ . An event  $S^\varphi$  consists in the appearance of some one of the sequences selected above, at the input of A at a given moment. A is said to represent the function  $\varphi(t)$  if it represents the event  $S^\varphi$ . The second Theorem is: The function  $\varphi(t)$  can be represented by a finite automatic device if and only if  $\varphi(t)$  is periodical above a certain value of  $t$ , i.e. there exist two numbers  $\tau$  and  $T$  such that for any  $t \geq \tau$   $\varphi(t + T) = \varphi(t)$ . Proof of the theorem is given. The second theorem reduces the problem of

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recognizing representability of recursive functions to that of recognizing periodicity of the function specified as above. Since the latter is not algorithmically solvable for the case of the function taking two values, an extension being said to be obvious, the proof of the second Theorem proves also the first. There are 8 references: 6 Soviet-bloc and 2 non-Soviet-bloc. The references to the English-language publications read as follows: I.M. Copi, C. Elcot, J.V. Wright, Realization of events by logical nets, Journal Assoc. Comp. Mach. vol. 5, no. 2, 1958; M.D. Davis, Computability and Unsolvability, McGraw Hill, N.Y., 1957.

SUBMITTED: January 4, 1961

X

Card 3/3

GUSEV, L. A.

"Equivalency and minimization of sequential machines"

report submitted for the Intl. Symposium on Relay Systems and Finite Automata Theory (IFAC), Moscow, 24 Sep-2 Oct 1962.

AYZERMAN, M. A. (Moskva); GUSEV, L. A. (Moskva); ROZONOKER, L. I. (Moskva);  
SMIRNOVA, I. M. (Moskva); TAL', A. A. (Moskva)

Conversion of the time pace of sequential machines and synthesis  
of switching circuits. Avtom. i telem. 23 no.11:1465-1491  
N '62. (MIRA 15:10)

(Electric relays) (Switching theory)  
(Automatic control)

L 44738-53 EWP(k)/EWP(h)/ENT(d)/EWP(1)/EWP(v) Pf-1/Pg-1/Pk-4/Pl-4/  
Po-4/Pq-4/Pae-2 IJP(c) 8C

ACCESSION NR: AP5008324

S/0103/05/026/003/0510/0520

AUTHOR: Gusev, L. A. (Moscow); Tal', A. A. (Moscow)

TITLE: Setting up algorithms for the abstract synthesis of sequential machines in a questionnaire language

SOURCE: Avtomatika i telemekhanika, v. 26, no. 3, 1965, 510-520

TOPIC TAGS: sequential machine, questionnaire language, automatic control, automatic control system, automatic control design, automatic control theory

ABSTRACT: Possibility is considered of realization of an abstract synthesis of sequential machines on the basis of replies to a finite number of questions of these two types: (1) Whether or not the "tape" is admissible; (2) Whether or not the "tree" is admissible. The "tape" is a sequence of symbols taken from the alphabet {s} of external situations; the "tree" is a branching combination of tapes. The method used is an outgrowth of D. A. Huffman's method (J. Franklin Inst., v. 257, nos. 3-4, 1954). It is proven that the abstract synthesis: (1) Not always can be realized on the basis of replies to the question regarding finite-length tapes; (2) Can always be realized if the questions cover finite-height trees; a corresponding "basic" algorithm of the questionnaire language is

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ACCESSION NR: AP5008324

developed. Orig. art. has: 2 figures, 1 formula, and 4 tables.

ASSOCIATION: none

SUBMITTED: 07Sep64

ENCL: 00

SUB CODE: DP,IE

NO REF SOV: 004

OTHER: 005

Card 2/2

GUSEV, L. A., YERINA, A. I.

Onions

Onion seed culture on collective farms. Sad i og. No. 5, 1952.

9. Monthly List of Russian Accessions, Library of Congress, July \_\_\_\_\_ 195<sup>2</sup>~~3~~. Unclassified.



GUSEV, L. A., YERINO, R. L.

Clover

Five centners of red clover seed from one hectare.

Sov. agron. 10 no. 5:32-34 My '52

Monthly List of Russian Accessions, Library of Congress, July 1952. Unclassified.

GUSEV, L. A.; YERINA, R. I.

Beets and Beet Sugar

13.9 centners of beet seeds per hectare.  
Sel. 1 sem., 19, No. 9, 1952.

Monthly List of Russian Accessions, Library of Congress, December 1952. Unclassified.

GUSEV, I. K.: "Traumatic breaks of the wrist bone and their anatomical-roentgenological aspects." Samarkand State Medical Institute Academician I. P. Pavlov. Samarkand, 1955.  
(Dissertation for the Degree of Candidate in Medical Sciences).

SO: Kuizhnaya letovis', No 23, 1956

KARLENKO, P.N., prof.; GUSEV, L.K., kand.med.nauk; YENIKYEVA, M.A., kand.  
med.nauk; OMIROV, R.Yu., aspirant; YUSUPOV, N.A., ordinator;  
AZAMATOV, N.A., ordinator; TAYTS, N.Yu.; ASRIYANTS, N.G., ordinator;  
BORUKHOV, S.A., ordinator.

Some results of a study of goiter in Samarkand Province of the Uzbek  
S.S.R. Med. zhur. Uzb. no.5:17-20 My '61. (MIRA 14:6)

1. Iz kliniki obshchey khirurgii Samarkandskogo gosudarstvennogo  
meditsinskogo instituta imeni I.P.Pavlova.  
(SAMARKAND PROVINCE—GOITER)

GUSEV, I. K., kand. med. nauk; TAYIN, N. Yu., ordinator

Foreign bodies in the esophagus. Nauch. trudy SamGU  
22:18-22 '63.

(MIRA 1:9)

1. Iz kliniki obshchey khirurgii Samarkandskogo meditsinskogo  
institute.

L 14052-65 EWG(j)/EWI(m) AMD/BSO/AS(mp)-2

ACCESSION NR: AR4045863

S/0299/64/000/014/M023/M023

SOURCE: Ref. zh. Biologiya. Svodnyy tom, Abs. 14M150

AUTHOR: Aripov, U. A.; Gusev, L. K.; Atayants, V. A.

TITLE: Characteristics of "accretion" of bone homotransplants in irradiated animals

CITED SOURCE: Sb. 3 Vses. konferentsiya po peresadke tkaney i organov, 1963. Yerevan, 1963, 252-253

TOPIC TAGS: accretion, bone, homotransplantation, transplantation, irradiation, rabbits, radiation sickness

TRANSLATION: Four experimental series were staged on 20 rabbits. In the first series a bone homotransplant was transplanted from a nonirradiated donor to a nonirradiated recipient; in the second series a bone homotransplant was transplanted from a nonirradiated donor to an irradiated recipient; in the third series a bone homotransplant was transplanted from an irradiated donor to a nonirradiated recipient; in the fourth series a bone homotransplant was transplanted

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ACCESSION NR: AR4045863

from an irradiated donor to an irradiated recipient. Radiation dose was 500 r. A defect in one quarter of the irradiated bone length was produced by operation. In the first series after 2 weeks tender homogeneous periosteal stratification appeared in the transplant area. After one month the bone homotransplant had distinct contours, and after  $2\frac{1}{2}$  to 3 mos the bone homotransplant could not be identified by X-ray. Histological examination disclosed restoration of the bone marrow canal and spongy structure of the cortical lamina of the bone homotransplant. In the second series, accretion of the homotransplant did not take place and the bone homotransplant resorption started by the end of the second week. In the third series, the periosteal reaction appeared late but after 3 mos the roentgenological and histological picture was the same as in the first series. In the fourth series, the periosteal reaction was absent up to the 34th day and all rabbits died of radiation sickness.

SUB CODE: LS

ENCL: 00

Card 2/2

GUSEV, L. M.

Doc Tech Sci - (diss) "Bases of theory and calculations of machines for clearing city roads." Moscow, 1961. 36 pp; (Ministry of Higher and Secondary Specialist Education RSFSR, Moscow Motor Vehicle and Road Inst "MADI"); 200 copies; price not given; (KL, 10-61 sup, 212)



GUSEV, Leonid Mikhaylovich, polkovnik; SHRAMOV, Nikolay Nikitich,  
polkovnik; POPOV, I.Ye., polkovnik zapasa, red.; SOKOLOVA, G.F.,  
tekhn. red.

[Firing from a tank; a manual for the crew] Strel'ba iz tanka;  
posobie dlia ekipazha. Moskva, Voen.izd-vo M-va oborony SSSR,  
1961. 109 p. (MIRA 15:2)  
(Shooting, Military) (Tanks (Military science))

GUSEV, L. M.

Borba so Skolzkostiu na Gorodskih i Avtoguzhevih Dorogah ( Combatting Slipperyness on  
City and Country Roads), Moscow, 1949.

W. S., ...

ROSE, L. I. "Where to locate the pump for washing and spraying machinery",  
Materialy po Kormoral. Khos-vu, 1949, Collection 1, p. 51-56.

SO: U-4393, 19 August 53, (Letopis 'Zhurnal 'nykh Statey', No. 22, 1949).

GUSEV, L. M.

Shigorin, G. G. and Gusev, L. M. "The production and use of gas from the settling of sewage," San. tekhnika (Nauch.-issled. in-tkommunal. khoz-va Ispolkoma Lengorsoveta), Issue 1, 1949, p. 74-133

SO: U-3261 , 10 April 53, (Letopis 'zhurnal 'nykh Statey, No. 12, 1949)

GUSEV, L. M.

Gusev, L. M. "Prospects for using gas as a substitute for fuel oil in the internal combustion engines of electrical communications installations," Sbornik trudov Leningr. elektrotekhn. in-ta svyazi im. Bonch-Bruyevicha, issue 4, 1949, p. 96-102

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Gusev, L. M. "new machinery for the municipal economy," San. tekhnika (Nauch. -  
issled. in-t kommunal. khoz-va Ispolkoma Lengorsoveta,) Issue 1, 1949, p. 159-95

SO: U-3261, 10 April 53, (Letopis 'Zhurnal 'nykh Statey, No. 12, 1949)

KOLLEROV, L.K.; GUSEV, L.M., kandidat tekhnicheskikh nauk, retsenzent;  
GRIBANOV, V.I., kandidat tekhnicheskikh nauk, retsenzent; GELIN,  
A.B., kandidat tekhnicheskikh nauk, redaktor; POL'SKAYA, R.G.,  
tekhnicheskiiy redaktor

[Gas engine installations] Gasomotornye ustanovki. Moskva, Gos.  
nauchno-tekhn. izd-vo mashinostroit. lit-ry, 1951. 238 p.  
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GOSEV, L. M.

Machines for washing and wetting down streets Moskva, Izd-vo Ministerstva kommunal'nogo  
khoziaistva RSFSR, 1953. 246 p. (54-37822)

TD836.R8G8



GUSEV, L.M.

Rating the operational effectiveness of machines devised for city  
street cleaning in the summer. Gig. 1 san. 21 no.11:91 N '56.  
(STREET CLEANING MACHINERY) (MLRA 10:2)

GUSEV, L.M., kandidat tekhnicheskikh nauk.

Testing road brooms. Stroitel'noe mashinostroyeniye. 2 no.7:24  
Jl '57. (MIRA 10:7)  
(Road machinery)

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AVRUSHCHENKO, R.A., red.izd-va; VOLKOV, S.V., tekhn.red.

[Ice control on roads] Bor'ba so skol'zkost'iu obledenevshikh  
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(Ice) (Roads--Maintenance and repair)

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(Academy of Municipal Economy im K. D. Pamfilov) (KL, 45-60, 124)